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EXAMINER	
MONDT, JOHANNES P	
ART UNIT	**PAPER NUMBER**
3663	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/29/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/797,784	SETLUR ET AL.	
	Examiner	Art Unit	
	Johannes P. Mondt	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Amendment filed 10/13/06 forms the basis for this action. In said Amendment applicant substantially amended claims 1-13 and 44 through substantial amendment of claims 1 and 44. Comments on Remarks submitted with said Amendment are included below under "Response to Arguments".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. ***Claims 1-13*** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the final wording "and/or $Mg_4FGeO_6:Mn^{4+}$" fails to state in a definite manner to which phosphor or combination of phosphors $Mg_4FGeO_6:Mn^{4+}$ may be added or included as replacement of said phosphor or combination of phosphors. Therefore, the claims are indefinite through the absence of defined meets and bounds.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. ***Claims 27-33, 38 and 39*** are rejected under 35 U.S.C. 102(b) as anticipated by Srivastava et al (WO 01/89001 A2) (as cited previously).

Srivastava et al teach:

a semiconductor light source 11 or 1; see Figures 2-5 and 7) having a peak emission in a range from 370 nm – 390 nm (because this range is completely within the UV range; see "1. The Radiation Source", pages 10-11, especially line 7 of page 11), and

a phosphor composition radiatively coupled to the light source (see pages 11-20), the phosphor composition comprising $(Ba,Sr,Ca)_2 SiO_4$:Eu (see "3. Second Phosphor", pages 13-15, especially 13, lines 20-26) (see also above under 35 USC 102(b)); and

phosphor $(Sr,Mg,Ca,Ba,Zn)2P_2O_7$:Eu,Mn (see page 12, lines 5-14) as well as phosphor $(Ca,Sr,Ba,Mg)_5(PO_4)_3Cl$:Eu,Mn (see "3. Third Phosphor", page 16, second paragraph).

On claim 28: the light source is a semiconductor LED (page 11, first paragraph).

On claim 29: the LED active region may comprise a p-n junction comprising GaN, AlGaN and InGaN semiconductor layers (page 11, first paragraph), hence said p-n junction can be characterized as an $In_iGa_jAl_kN$ layer with $0 \leq i$, $0 \leq j$; $0 \leq k$, $i+j+k=1$.

On claim 30: the lighting apparatus by Srivastava is also disclosed as an organic emissive structure, in particular: OLED (page 11, second paragraph).

On claim 31: the phosphor composition is coated on the surface of the light source (coating 46; see page 24 and Figure 7).

On claim 32: the lighting apparatus further comprises an encapsulant 19 surrounding the light source 11 and the phosphor composition 21 (pages 22-23 and Figure 4).

On claim 33: the phosphor is dispersed in the encapsulant (Figure 4 and loc.cit.).

On claim 38: said phosphor composition further comprises one or more additional phosphor(s) (see "2. First Phosphor", pages 11-12; "4. Third Phosphor", pages 15-18; and " 5. Optional Fourth Phosphor", pages 18-19).

On claim 39: said one or more additional phosphors are selected from the claimed group, for instance $(Ba,Sr,Ca)MgP_2O_7:Eu^{2+},Mn^{2+}$. See page 12, lines 5-9.

2. ***Claim 27-29, 31-34 and 38-39*** are rejected under 35 U.S.C. 102(b) as being anticipated by Bokor et al (WO 02/11214 A1).

Bokor et al teach a light-emitting apparatus capable of producing white light ([0001], [0008],[0011], [0027]-[0029], Figure 1 and Table 4) comprising: a semiconductor light source 1 ([0027]) emitting radiation having a peak emission in the UV range (370 nm as peak wavelength is in the UV part of the spectrum; see abstract and [0008] and [0027]-[0029]) and a phosphor composition 6 ([0027]) radiatively coupled to the light source ([0008] and [0027]-[0029] and Table 4), the phosphor composition comprising $(Sr,Ba,Ca)_2SiO_4:Eu$ (item 14 in Table 4; for zero content of Ca, explicitly included in the definition according to applicants' admission; see page 13 of Remarks submitted with Amendment filed 10/3/05); and one or more of the additionally recited phosphors in the claim, i.e., at least (see Table 3) the red phosphor

$Sr_2P_2O_7$:Eu,Mn (which is included in the terminology $(Sr,Mg,Ca,Ba,Zn)_2P_2O_7$:Eu,Mn (see explanation above).

On claim 28: the lighting apparatus is an LED (title).

On claim 29: the LED comprises a nitride compound semiconductor represented by the formula $In_iGa_jAl_kN$, $0 \leq k$, and $I+j=k$. See [0013]).

On claim 31: the phosphor composition is coated on the surface of the light source (the coating being 5 comprising 6 ([0027])).

On claim 32: the lighting apparatus further comprises an encapsulant 5 ([0027]) surrounding the light source 1 and the phosphor composition 6.

*On claim 33:*the phosphor composition is dispersed in the encapsulant (Figure 1 and [0027]).

On claim 34: the lighting apparatus further comprises a reflector cup (see Figure 1, and reflecting walls 17 ([0027]).

On claim 38: said phosphor composition further comprises necessarily at least one additional phosphor because inclusion of (Sr,Ba)SiO4:Eu2+ needs to be combined with at least one phosphor in the blue portion of the emission spectrum ([0028] and [0032])..

On claim 39: said one or more additional phosphors are selected from the blue-emitting phosphors 2, 4 and 6 in Table 4, inter alia: $(Ba,Sr,Ca)_5(PO_4)_3(Cl,F,Br,OH):Eu^{2+}$ (No.2 in Table 4, for zero content of Ca and the selection of Cl), and $(Ba,Sr,Ca)MgAl_{10}O_{17}:Eu^{2+},Mn^{2+}$ (for zero content of Ca and Mn).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. ***Claims 1-7, 12, 13 and 45*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al ("Srivastava", cited previously) in view of Schaepkens and either Lowden or Wyner (all previously cited).

On claim 1: Srivastava et al teach a lighting apparatus for emitting white light comprising:

a semiconductor light source 11 or 1; see Figures 2-5 and 7) having a peak emission in a range from 370 nm – 390 nm (because this range is completely within the UV range; see "1. The Radiation Source", pages 10-11, especially line 7 of page 11), and

a phosphor composition radiatively coupled to the light source (see pages 11-20), the phosphor composition comprising $(Ba,Sr,Ca)_2 SiO_4$:Eu (see "3. Second Phosphor", pages 13-15, especially 13, lines 20-26).

Srivastava et al do not necessarily teach the phosphor composition to also comprise one or more garnet phosphors and a magnesium fluorogermanate with formulae as claimed.

However, it would have been obvious to include said one or more garnet phosphors and magnesium fluorogermanate as claimed in view of Schaepkens et al, who, in a patent application on lighting apparatus (see title and abstract) including

color conversion of primary light from light emitting apparatus (see [0037]-[0044]), hence analogous art, teach the inclusion of both a garnet phosphor having the general formula as claimed (see [0037]) for the specific purpose of absorption of the primary radiation including UV radiation at 390 nm (hence in the range around the peak wavelength of the light source of Srivastava et al) and subsequent emission in the green-to-red portion of the spectrum, and a magnesium fluorogermanate ([0039]) for the purpose of absorption of the primary radiation in a range comprising the peak wavelength of Srivastava et al. *Motivation* to include both the garnet and magnesium fluorogermanate phosphors immediately derives from the suitability of said phosphors for conversion of UV light to produce components in the spectrum supplementing the mainly blue-green component emitted by the $(Sr,Ba,Ca)_2SiO_4$:Eu phosphor so as to approach white light, which is the common goal of the primary references (see Srivastava et al, "Background of the Invention", page 1).

Neither of the above references necessarily teach the specific formula for the magnesium fluorogermanate as claimed. *However, as witnessed for instance by Lowden et al or Wyner et al*, the selection of the specific magnesium fluorogermanate having the specific formula Mg_4FGeO_6:Mn has long been used as red phosphor, for the very purpose of down-conversion for which the magnesium fluorogermanate by Schaepkens is used. *Applicant is reminded that a prima facie case of obviousness* typically exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art, as is the case here between the stoichiometric ratios between the atoms forming the germanium fluorogermanates, or when the ranges of a claimed composition

do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties. In re Peterson, 65 USPQ2d 1379 (CA FC 2003).

Finally, the phosphor blend as recited by claim 40 is herewith also made obvious, because the combined invention implies the phosphor blend including $(Ba,Sr,Ca)_2$ SiO_4:Eu, Mg4FgeO6:Mn4+ and both the garnet phosphor having the general formula as claimed and the magnesium fluorogermanate having the claimed formula.

On claim 2: the light source is an LED (page 11, first paragraph).

On claim 3: the LED active region may comprise a p-n junction comprising GaN, AlGaN and InGaN semiconductor layers (page 11, first paragraph), hence said p-n junction can be characterized as an $In_iGa_jAl_kN$ layer with $0 \leq i$, $0 \leq j$; $0 \leq k$, $i+j+k=1$.

On claim 4: the lighting apparatus by Srivastava is also disclosed as an organic emissive structure, in particular: OLED (page 11, second paragraph).

On claim 5: the phosphor composition is coated on the surface of the light source (coating 46; see page 24 and Figure 7).

On claim 6: the lighting apparatus further comprises an encapsulant 19 surrounding the light source 11 and the phosphor composition 21 (pages 22-23 and Figure 4).

On claim 7: the phosphor is dispersed in the encapsulant (Figure 4 and loc.cit.).

On claim 12: said phosphor composition further comprises one or more additional phosphor(s) (see "2. First Phosphor", pages 11-12; "4. Third Phosphor", pages 15-18; and " 5. Optional Fourth Phosphor", pages 18-19).

On claim 13: said one or more additional phosphors are selected from the claimed group, for instance $(Ba,Sr,Ca)MgP_2O_7:Eu^{2+},Mn^{2+}$. See page 12, lines 5-9).

On claim 45: said semiconductor light source has a peak emission at about 405 nm (namely: in the ranger 370 nm – 390 nm).

3. ***Claims 14-16, 18-21, 25 and 26*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bokor et al in view of Schaepkens et al (US 2004/0051444 A1) and either Lowden et al (cited in previous action) or Wyner et al (EP 0 087 745 A1). As detailed above, *Bokor et al teach* a light-emitting apparatus capable of emitting white light comprising:

a UV light source emitting radiation having a peak emission in the UV range and a phosphor composition radiatively coupled to the light source, the phosphor composition comprising $(Sr,Ba,Ca)_2SiO_4:Eu$ (see rejection over Bokor et al under 35 USC 102(b) overleaf).

Bokor et al do not necessarily teach the phosphor composition to also comprise one or more garnet phosphors and a magnesium fluorogermanate with formulae as claimed.

However, it would have been obvious to include said one or more garnet phosphors and magnesium fluorogermanate as claimed in view of Schaepkens et al, who, in a patent application on lighting apparatus (see title and abstract) including color conversion of primary light from light emitting apparatus (see [0037]-[0044]), hence analogous art, teach the inclusion of both a garnet phosphor having the general formula as claimed (see [0037]) for the specific purpose of absorption of the

primary radiation including UV radiation at 390 nm (hence in the range around the peak wavelength of the light source of Bokor et al) and subsequent emission in the green-to-red portion of the spectrum, and a magnesium fluorogermanate ([0039]) for the purpose of absorption of the primary radiation in a range comprising the peak wavelength of Bokor et al (namely in a range from 300 nm to 500 nm; see [0037]) and subsequent emission of red light ([0039]). *Motivation* to include both the garnet and magnesium fluorogermanate phosphors immediately derives from the suitability of said phosphors for conversion of UV light to produce components in the spectrum supplementing the mainly blue-green component emitted by the $(Sr,Ba,Ca)_2SiO_4$:Eu phosphor so as to approach white light, which is the common goal of the primary references (see Bokor et al, [0001]-[0002]).

Neither of the above references necessarily teach the specific formula for the magnesium fluorogermanate as claimed. *However, as witnessed for instance by Lowden et al or Wyner et al*, the selection of the specific magnesium fluorogermanate having the specific formula Mg_4FGeO_6:Mn has long been used as red phosphor, for the very purpose of down-conversion for which the magnesium fluorogermanate by Schaepkens is used. *Applicant is reminded that a prima facie* case of obviousness typically exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art, as is the case here between the stoichiometric ratios between the atoms forming the germanium fluorogermanates, or when the ranges of a claimed composition do not overlap but are close enough such that one skilled in the art would have

expected them to have the same properties. In re Peterson, 65 USPQ2d 1379 (CA FC 2003).

On claim 15: the lighting apparatus is an LED (title).

On claim 16: the LED comprises a nitride compound semiconductor represented by the formula $In_iGa_jAl_kN$, $0 \leq k$, and $I+j=k$. See [0013]).

On claim 18: the phosphor composition is coated on the surface of the light source (the coating being 5 comprising 6 ([0027])).

On claim 19: the lighting apparatus further comprises an encapsulant 5 ([0027]) surrounding the light source 1 and the phosphor composition 6.

*On claim 20:*the phosphor composition is dispersed in the encapsulant (Figure 1 and [0027]).

On claim 21: the lighting apparatus further comprises a reflector cup (see Figure 1, and reflecting walls 17 ([0027]).

On claim25: said phosphor composition further comprises necessarily at least one additional phosphor because inclusion of (Sr,Ba)SiO4:Eu2+ needs to be combined with at least one phosphor in the blue portion of the emission spectrum ([0028] and [0032])..

On claim 26: said one or more additional phosphors are selected from the blue-emitting phosphors 2, 4 and 6 in Table 4, inter alia: $(Ba,Sr,Ca)_5(PO4)_3(Cl,F,Br,OH):Eu^{2+}$ (No.2 in Table 4, for zero content of Ca and the selection of Cl), and $(Ba,Sr,Ca)MgAl_{10}O_{17}:Eu^{2+},Mn^{2+}$ (for zero content of Ca and Mn).

4. ***Claims 14-20, 25-26, 40 and 43*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al (WO 01/89001 A2) (cited previously) in view of Schaepkens et al (US 2004/0051444 A1) (cited previously) and either Lowden et al (cited in previous action) or Wyner et al (EP 0 087 745 A1) (cited previously).

On claims 14 and 40: As detailed above, Srivastava et al teach a semiconductor light source 11 or 1; see Figures 2-5 and 7) having a peak emission in a range from 370 nm – 390 nm (because this range is completely within the UV range; see "1. The Radiation Source", pages 10-11, especially line 7 of page 11), and

a phosphor composition radiatively coupled to the light source (see pages 11-20), the phosphor composition comprising $(Ba,Sr,Ca)_2 SiO_4$:Eu (see "3. Second Phosphor", pages 13-15, especially 13, lines 20-26).

Srivastava et al do not necessarily teach the phosphor composition to also comprise one or more garnet phosphors and a magnesium fluorogermanate with formulae as claimed.

However, it would have been obvious to include said one or more garnet phosphors and magnesium fluorogermanate as claimed in view of Schaepkens et al, who, in a patent application on lighting apparatus (see title and abstract) including color conversion of primary light from light emitting apparatus (see [0037]-[0044]), hence analogous art, teach the inclusion of both a garnet phosphor having the general formula as claimed (see [0037]) for the specific purpose of absorption of the primary radiation including UV radiation at 390 nm (hence in the range around the

peak wavelength of the light source of Srivastava et al) and subsequent emission in the green-to-red portion of the spectrum, and a magnesium fluorogermanate ([0039]) for the purpose of absorption of the primary radiation in a range comprising the peak wavelength of Srivastava et al. *Motivation* to include both the garnet and magnesium fluorogermanate phosphors immediately derives from the suitability of said phosphors for conversion of UV light to produce components in the spectrum supplementing the mainly blue-green component emitted by the $(Sr,Ba,Ca)_2SiO_4$:Eu phosphor so as to approach white light, which is the common goal of the primary references (see Srivastava et al, "Background of the Invention", page 1).

Neither of the above references necessarily teach the specific formula for the magnesium fluorogermanate as claimed. *However, as witnessed for instance by Lowden et al or Wyner et al*, the selection of the specific magnesium fluorogermanate having the specific formula Mg_4FGeO_6:Mn has long been used as red phosphor, for the very purpose of down-conversion for which the magnesium fluorogermanate by Schaepkens is used. *Applicant is reminded that a prima facie case of obviousness* typically exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art, as is the case here between the stoichiometric ratios between the atoms forming the germanium fluorogermanates, or when the ranges of a claimed composition do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties. In re Peterson, 65 USPQ2d 1379 (CA FC 2003).

Finally, the phosphor blend as recited by claim 40 is herewith also made obvious, because the combined invention implies the phosphor blend including $(Ba,Sr,Ca)_2$ SiO_4:Eu, Mg4FgeO6:Mn4+ and both the garnet phosphor having the general formula as claimed and the magnesium fluorogermanate having the claimed formula.

On claim 15: the light source is a semiconductor LED (page 11, first paragraph).

On claim 16: the LED active region may comprise a p-n junction comprising GaN, AlGaN and InGaN semiconductor layers (page 11, first paragraph), hence said p-n junction can be characterized as an $In_iGa_jAl_kN$ layer with $0 \leq i$, $0 \leq j$; $0 \leq k$, $i+j+k=1$.

On claim 17: the lighting apparatus by Srivastava is also disclosed as an organic emissive structure, in particular: OLED (page 11, second paragraph).

On claim 18: the phosphor composition is coated on the surface of the light source (coating 46; see page 24 and Figure 7).

On claim 19: the lighting apparatus further comprises an encapsulant 19 surrounding the light source 11 and the phosphor composition 21 (pages 22-23 and Figure 4).

On claim 20: the phosphor is dispersed in the encapsulant (Figure 4 and loc.cit.).

On claim 25: said phosphor composition further comprises one or more additional phosphor(s) (see "2. First Phosphor", pages 11-12; "4. Third Phosphor", pages 15-18; and " 5. Optional Fourth Phosphor", pages 18-19).

On claim 26: said one or more additional phosphors are selected from the claimed group, for instance $(Ba,Sr,Ca)MgP_2O_7:Eu^{2+},Mn^{2+}$. See page 12, lines 5-9).

On claim 43: Srivastava's invention is using said phosphor blend to absorb radiation emitted by a light source with a peak emission in the UV range and emitting radiation that, when combined with said radiation from said light source produces white light (see "1. Radiation Source", page 10 final lines on primary source spectrum and "Background of the Invention", pages 1-4 on the overall production of white light).

5. ***Claim 44*** is rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava et al (WO 01/89001 A2) (previously cited) in view of Admission by Applicant in their disclosure on equivalence of phosphors (previously cited).

Srivastava et al teach Srivastava et al teach a lighting apparatus for emitting white light comprising:

a semiconductor light source 11 or 1; see Figures 2-5 and 7) having a peak emission in a range from 370 nm – 390 nm (because this range is completely within the UV range; see "1. The Radiation Source", pages 10-11, especially line 7 of page 11), and

a phosphor composition radiatively coupled to the light source (see pages 11-20), the phosphor composition comprising $(Ba,Sr,Ca)_2 SiO_4$:Eu (see "3. Second Phosphor", pages 13-15, especially 13, lines 20-26).

Srivastava et al also teach the blue-green phosphor first listed in the claim as their "Second Phosphor" (page 13, final paragraph), the second phosphor listed in the claim as both one of their "Third Phosphor" (green phosphor) embodiments and as one of their blue phosphor embodiments (page 16), a magnesium fluorogermanate (page 31)

closely related to the fourth phosphor listed in the claim for red phosphor, *but do not necessarily teach the phosphor* $Sr_4Al_{14}O_{25}:Eu^{2+}$.

However, as admitted by Applicants in their disclosure, it would have been obvious to view $Sr_4Al_{14}O_{25}: Eu^{2+}$ as an equivalent to $(Ba,Sr,Ca)_5(PO_4)_3(Cl,F,OH):Eu^{2+},Mn^{2+}$ embodiments in view of the list presented on page 11 of the specification.

Applicant is reminded in this regard that it has been held that mere selection of known materials generally understood to be suitable to make a device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely obvious. In re Leshin 125 USPQ 416.

Allowable Subject Matter

6. ***Claims 22-24, 35-37 and 41-42*** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Strictly within the context of the inventions as defined by independent claims 1, 14, 27 and 40, the composition with the specific stoichiometric parameter values and cxx and ccy values have not been found in the prior art, nor are they obvious over the prior art.

Response to Arguments

Applicant's arguments filed 10/13/06 have been fully considered but they are not persuasive. In particular, although the arguments against rejection under 35 USC 112

are persuasive, those directed against the art rejections are not. Specifically, and with reference to Remarks by Applicant :

Ad B: Claims are not patentable over Srivastava

Argument in traverse appears to rely exclusively on the unpatentability of the limitations defining claim 40 now incorporated into claim 1. However, claim 40 has been rejected.

Ad C: Claims are not patentable over Bokor:

Notation (Sr,Ba)SiO4:Eu indicates an orthosilicate, with orthosilicate ion SiO4(negative charge –4). In response to Applicant's argument on the failing subscript "2), Applicant is referred to the periodic system (see PTO-892) from which it is evident that SiO4 has valence –4, and hence two 2+ valence ions are required in the composition. This is not excluded or in contradiction with anything Bokor discloses, because the distribution over the anions is not stated to be either normalized or non-normalized. See also, e.g., Jung et al (US 2006/0152157 A1), not for teaching, but merely fact on nomenclature, witnessing that the notation (Sr,Ba)SiO4 includes SrBaSiO4, which in applicants' notation implies equivalence of Bokor's teaching through item 14 of Table 4 to what is claimed.([0054])

Because according to applicant's own admission a Ca concentration of zero is included in his notation the two chemical formulae are equivalent.

Ad D: Claims are not patentable over Bokor in view of Schaepkens and either Lowden or Wyner:

Applicant's argument appears to fully rely on the argument of the failing subscript 2 discussed above and hence also fails to persuade.

Ad E: Claims are not patentable over Srivastava in view of Schaepkens and either Lowden or Wyner.

Argument that obviousness is lacking is not persuasive because the inclusion of additional phosphors only would significantly shift the *peak* emission wavelength if sufficiently abundant. There is no requirement in the combination nor in the claim language as to the abundances of the respective phosphors.

For the above reasons the substantially amended claims must once again be rejected except for those for which allowable subject matter had previously been indicated.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

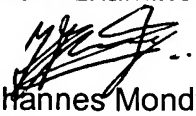
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPM
December 23, 2006

Patent Examiner:



Johannes Mondt (Art Unit: 3663)